

Reaching beyond the COMET

TEKS Sarl are part of the European Framework 7 Program COMET, Plug-and-produce COmponents and METHods for adaptive control of industrial robots enabling cost effective, high precision manufacturing in factories of the future.

The 30 month COMET project aims to overcome the challenges facing European manufacturing industries by developing innovative machining systems that are flexible, reliable and predictable with an average of 30% cost efficiency savings in comparison to machine tools. From a conceptual point of view, industrial robot technology could provide an excellent base for machining being both flexible and cost efficient. However, industrial robots lacks absolute positioning accuracy, are unable to reject disturbances in terms of process forces and lack reliable programming and simulation tools to ensure right first time machining, once production commences. These three critical limitations currently prevent the use of robots in typical machining applications.

The main aim the project is to use a number of innovative approaches to overcome the traditional disadvantages of robots to manufacture precision components i.e. in aluminium for the aerospace sector and is set to achieve this goal.

TEKS have recently been exploring the potential of the COMET technology in other market sectors. One particular application comes from the civil engineering sector.

Surveying companies, traditionally very conservative, have some time ago started introducing new technologies such as GPS assisted surveying or the most recent innovation long range laser scanning. With long range laser scanning a large number of topographical features can be accurately recorded within the line of sight. This technology is for example used to survey quarries and opencast mining operations. This technology records more information in more accurate detail compared to other technologies in a fraction of the time.

This accuracy and detail comes with a disadvantage. The typical file size for an average quarry can easily exceed 30-40 GB. The difficulty now is to visualize this data, a task exceeding the capabilities of most desktop PC's used in all but the most demanding environments.

This is exactly where the COMET technology can help, the point cloud data can be surfaced and then machined out of a light weight material i.e. polystyrene. The resulting model can then be easily displayed without the need for expensive hardware at the client side. Moreover as the quarrying operation proceeds this process can easily be visualized, either on the existing model or through new models.

Mark Packham a Director of Mining Surveys of Chesterfield says: "We are very interested in this technology and see a great potential for it, it combines our speed and accuracy with hands on visualization not possible to date".

Acknowledgements:

This project is co-funded by the European Commission as part of the European Economic Recovery Plan (EERP) adopted in 2008. The EERP proposes the launch of Public-Private Partnerships (PPP) in three sectors, one of them being Factories of the Future (FoF). Factories of the Future is a EUR 1.2 billion program in which the European Commission and industry are collaborating in research to support the development and innovation of new enabling technologies for the EU manufacturing sector. For more information about the COMET project visit <http://www.comet-project.eu>.